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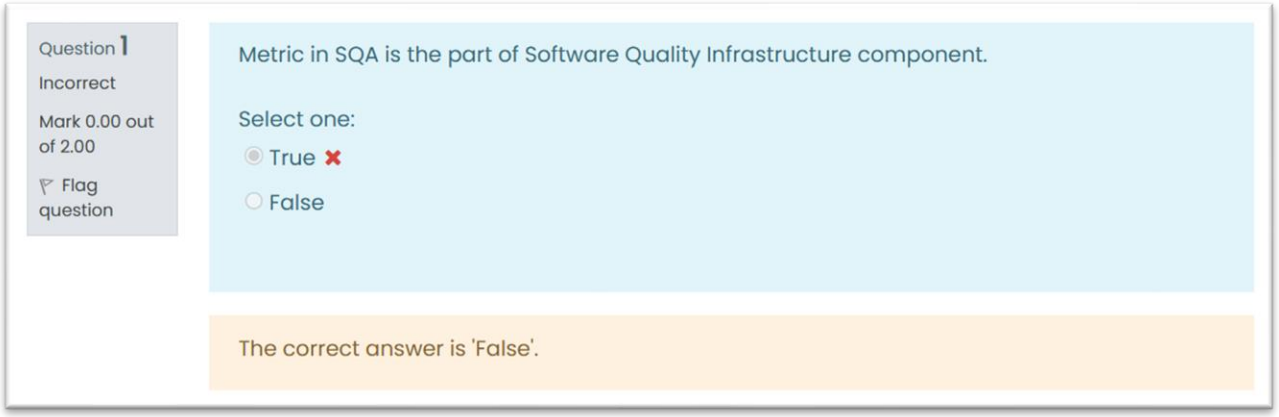
Kelas : 44 TRPL 2

Pembahasan Soal UTS Kualitas Perangkat Lunak

A. Pilihan Berganda

1. Soal Nomor 1

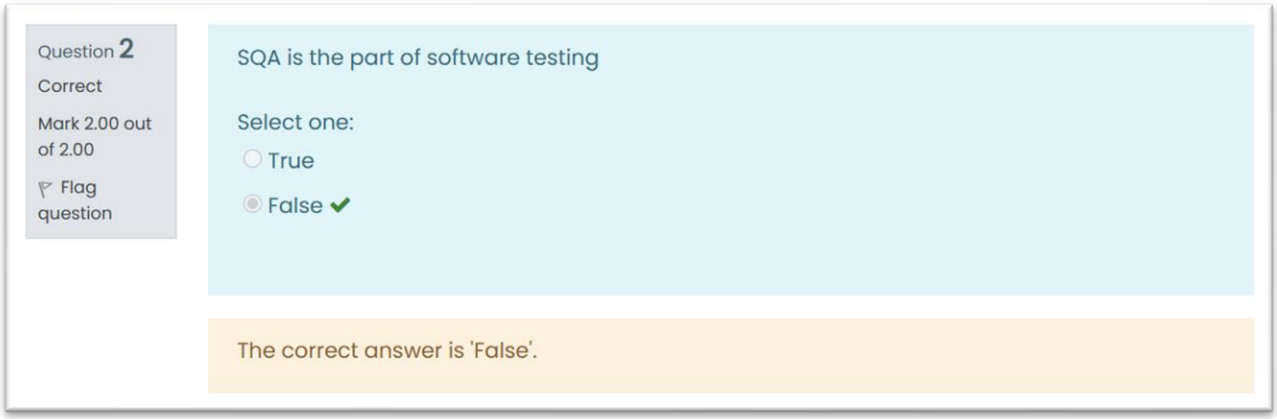


- Jawaban yang benar adalah *False*.

  Karena Software quality metrics merupakan bagian dari Software quality management. Software Quality Infrastructure component terdiri atas:

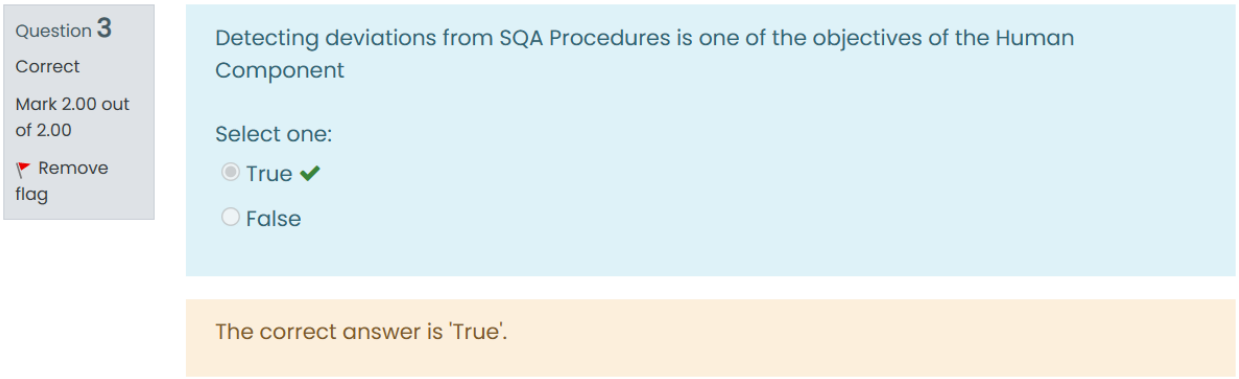
  - Maintenance procedures and instructions
  - Supporting quality devices
  - Maintenance staff training, retraining, andcertification
  - Maintenance preventive and corrective actions
  - Configuration management
  - Control of maintenance documentation
  - Quality records.

2. Soal Nomor 2



- ❖ SQA bukan merupakan bagian dari software testing. SQA adalah serangkaian tindakan terencana dan sistematis yang diperlukan untuk memberikan kepercayaan yang memadai bahwa proses pengembangan perangkat lunak atau proses pemeliharaan produk sistem perangkat lunak sesuai dengan persyaratan teknis fungsional yang ditetapkan serta persyaratan manajerial untuk menjaga jadwal dan beroperasi dalam batas-batas anggaran.

3. Soal Nomor 3



- ❖ Organizing for SQA – the human component memiliki onjektif sebagai berikut:
  - Develop and support implementations of SQA components
  - Detect deviations from SQA procedures and methodology
  - Suggest improvements to SQA components

4. Soal Nomor 4

Question 4
Correct
Mark 2.00 out of 2.00
Flag question

The more reviewer the better

Select one:
- True
- False ✔

The correct answer is 'False'.

- ❖ Tim review harus dibatasi jumlahnya, optimalnya jumlah anggota review adalah 3-5 orang sehingga pernyataan semakin banyak reviewer tidak berarti akan semakin baik.

5. Soal Nomor 5

Question 5
Correct
Mark 2.00 out of 2.00
Flag question

In Pair Programming technique, two developers working at the same workstation.

Select one:
- True ✔
- False

The correct answer is 'True'.

- ❖ Pada teknik review pair programming, dua developers bekerja pada single workstation atau pada workstation yang sama (Two authors develop code together at the same workstation).

6. Soal Nomor 6

Question 6
Correct
Mark 2.00 out of 2.00
Flag question

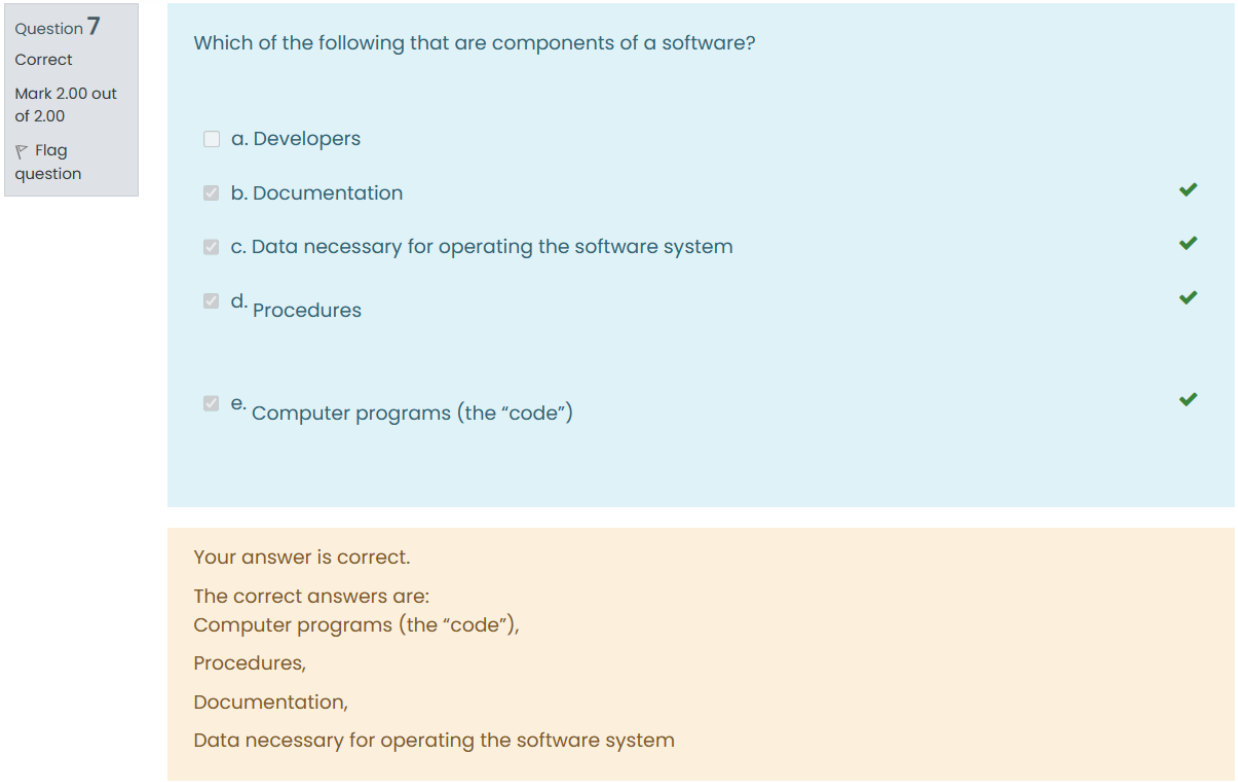
When a programmer found a fault in his code that is under review, he should change the code immediately without any notification

Select one:
- True
- False ✔

The correct answer is 'False'.

- ❖ Hindari mengubah kode atau desain tanpa memberi tahu reviewer. Anda mungkin menemukan cacat pada desain atau kode Anda setelah Anda mengirimkannya untuk direview, tetapi Anda harus menahan godaan untuk memperbaiki masalah sebelum review meeting. Jika Anda mengubah kode atau desain sebelum rapat, ulasan akan membingungkan dan reviewer Anda kemungkinan besar akan tersinggung. Daripada memperbaiki kesalahan yang Anda temukan seolah-olah Anda adalah reviewer tanpa memberikan pemberitahuan; lebih baik catat dan lacak bersama dengan semua komentar review lainnya.

7. Soal Nomor 7



- ❖ Ada 4 komponen dari perangkat lunak, yaitu computer programs (code), procedures, documentation, data necessary for operating the software system.

8. Soal Nomor 8

Question 8
Partially correct
Mark 0.33 out of 2.00
Remove flag

The following statements are correct, except (more than one):

- [ ] a. Software Fault is detected when the software being executed
- [x] b. Software Failure is software error that cause improper functioning of the software ✖
- [x] c. Software Fault is software failure that becomes "activated" ✔
- [ ] d. Software Failure is caused by software fault/s
- [x] e. Software Failure is grammatical error in one or more of the code lines, or a logical error in carrying out one or more of the client's requirements ✔

Your answer is partially correct.

You have correctly selected 2.
The correct answers are:
Software Fault is detected when the software being executed,

Software Failure is grammatical error in one or more of the code lines, or a logical error in carrying out one or more of the client's requirements,

Software Fault is software failure that becomes "activated"

- ❖ Berikut ini merupakan pengertian dari software error, fault, failu
  - Software Error: gramatical error in one or more of the code lines, or a logical error in carrying out one or more of the client's requirements
  - Software Fault: software error that cause improper functioning of the software
  - Software Failure: software fault that becomes "activated"

9. Soal Nomor 9

Question 9
Correct
Mark 2.00 out of 2.00
Flag question

When Program X executed with a test case, the output is A that is different from the expected output (B). This condition indicates:

- a. Error
- b. Fail
- c. Mistake
- d. Fault
- (•) e. Failure ✔

Your answer is correct.

The correct answer is:
Failure

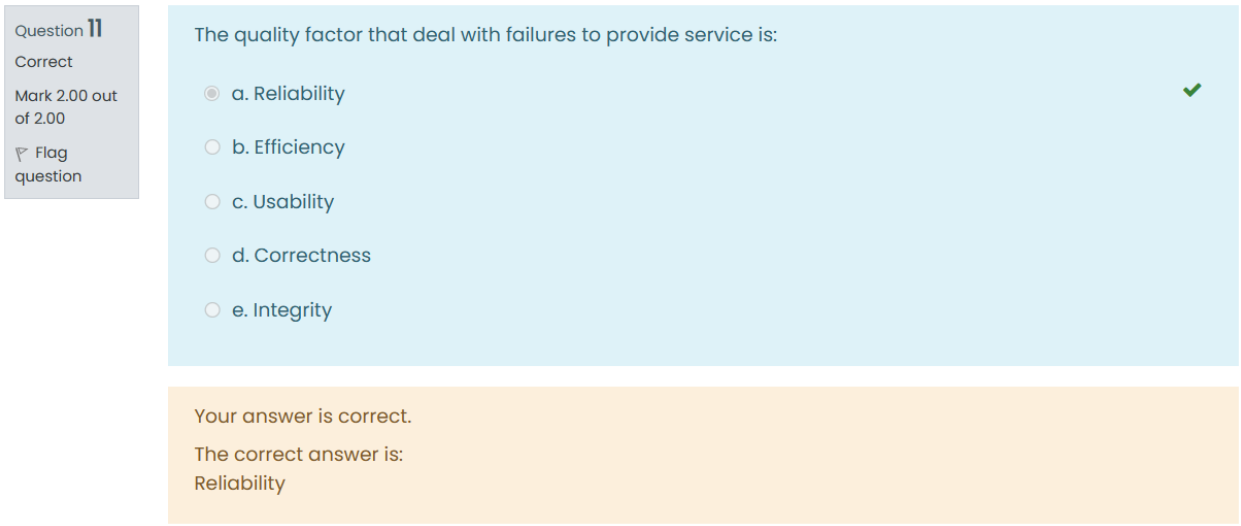
❖ Software failure merupakan software fault yang sudah diaktivasi atau disebut juga software fault yang sudah terlihat efeknya.

10. Soal Nomor 10

❖ Karakteristik dari SQA environment adalah sebagai berikut:

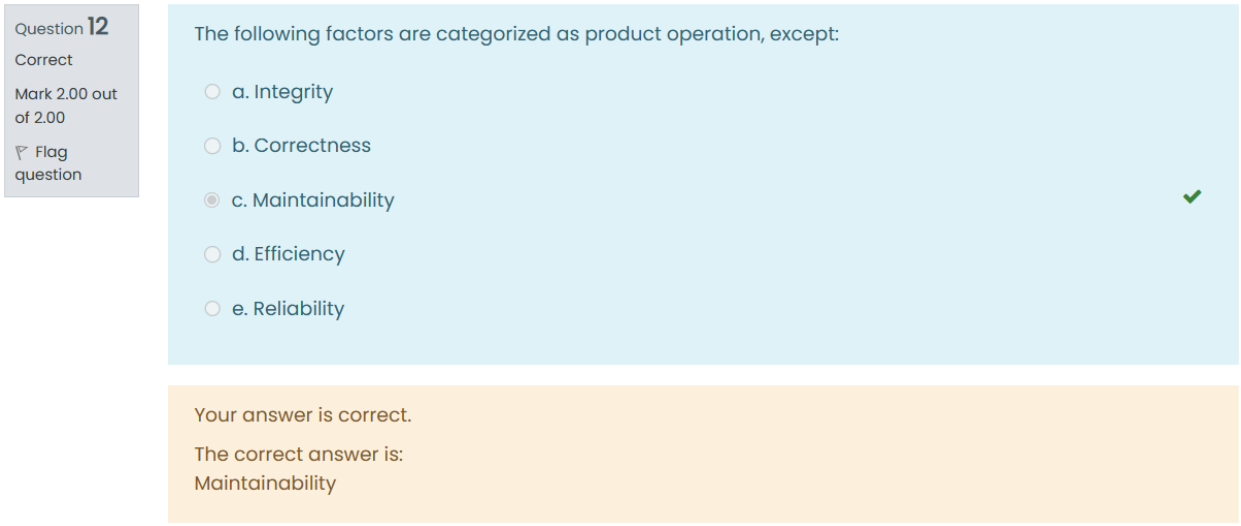
- Subjection to customer-supplier relationship
- Requirement for teamwork
- Being contracted
- Need for cooperation and coordination with other development teams
- Need to continue maintaining the software system for year

11. Soal Nomor 11



- ❖ Berikut ini merupakan McCall's Quality Factor (Product Operation):
  - Correctness: defined in a list of the software system's required outputs.
  - Reliability: requirements deal with failures to provide service
  - Efficiency: requirements deal with the hardware resources needed to perform all the functions of the software systemin conformance to all other requirements.
  - Integrity: requirements deal with the software system security, that is, requirements to prevent access to unauthorized persons, to distinguish between the majority of personnel allowed to see the information
  - Usability: requirements deal with the scope of staff resources needed to train a new employee and to operate the software system.

12. Soal Nomor 12



- Berikut ini merupakan McCall's Quality Factor (Product Operation):
  - Correctness
  - Reliability
  - Efficiency
  - Integrity
  - Usability
- Berikut ini merupakan McCall's Quality Factor (Product Revision):
  - Maintainability
  - Flexibility
  - Testability
- Berikut ini merupakan McCall's Quality Factor (Product Revision):
  - Protability
  - Reusability
  - Interoperability

13. Soal Nomor 13

Question 13
Correct
Mark 2.00 out of 2.00
Flag question

A software package designed and programmed to operate in a Windows 2000 environment is required to allow low-cost transfer to Linux and Windows NT environments. Which quality factor is related to this requirement?

- a. Maintainability
- b. Portability ✔
- c. Interoperability
- d. Reusability
- e. Reliability

Your answer is correct.

The correct answer is:
Portability

- ❖ Portability: Effort required to transfer a program from one hardware and/or software environment to another

14. Soal Nomor 14

Question 14
Correct
Mark 2.00 out of 2.00
Flag question

SQA factor that is related with software security:

- a. Correctness
- b. Usability
- c. Reliability
- d. Maintainability
- e. Integrity ✔

Your answer is correct.

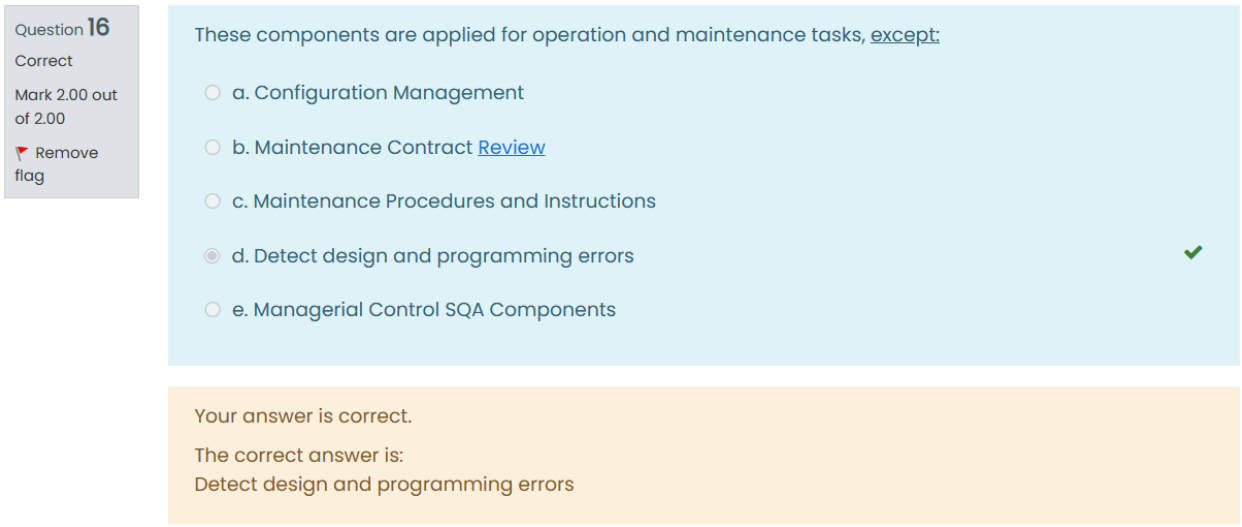
The correct answer is:
Integrity

- ❖ Integrity merupakan SQA factor yang berhubungan dengan software security.

15. Soal Nomor 15

- Pre-project components terbagi menjadi 2 yaitu, contract review dan development and quality plans. Sehingga contract review yang menjadi bagian pre-project quality components bukan pre-project quality components yang menjadi bagian contract review.

16. Soal Nomor 16

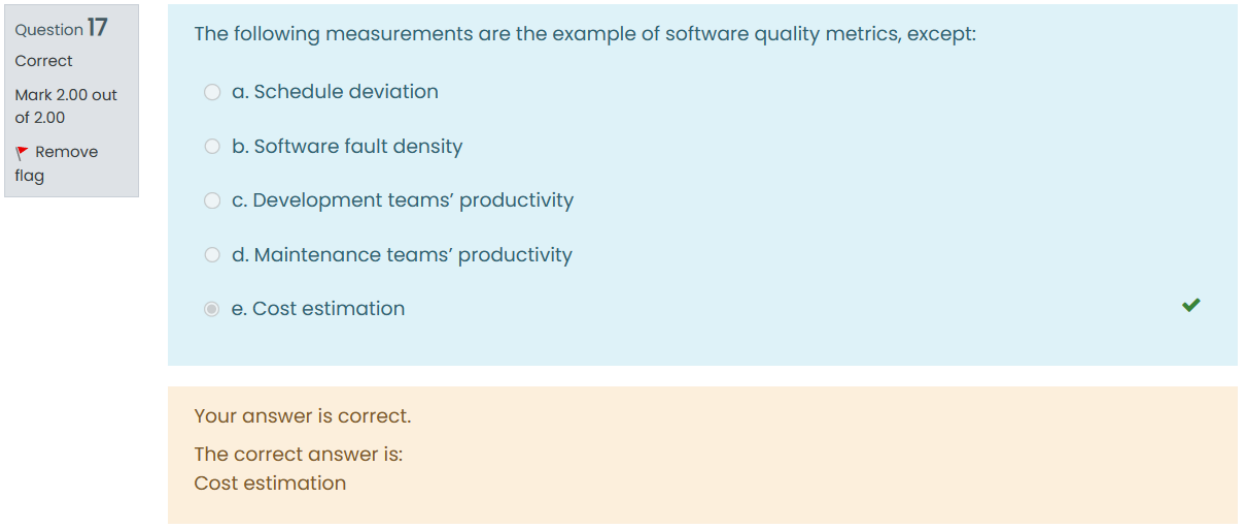


- Berdasarkan project life cycle activities assessment, komponen operation and maintenance adalah:
  - Maintenance contract review.
  - Maintenance procedures and instructions.
  - Maintenance staff training.
  - Configuration management.

- Managerial control SQA components.

Sehingga detect design and programming errors merupakan komponen dari development stage.

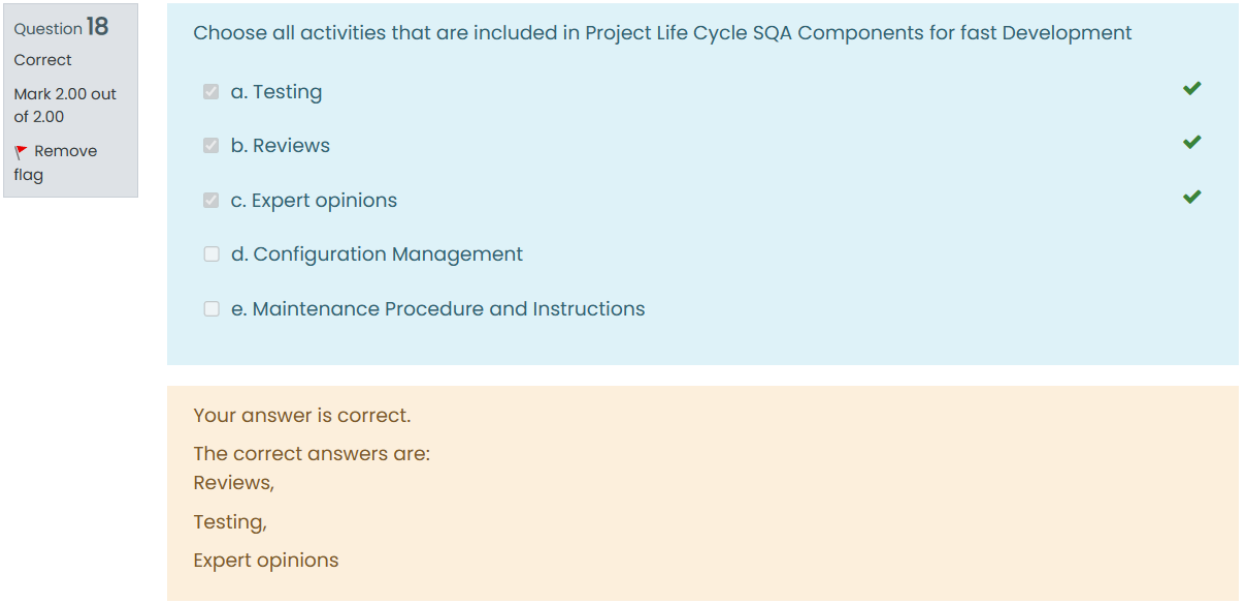
17. Soal Nomor 17



❖ The measurement of software quality metricts adalah:

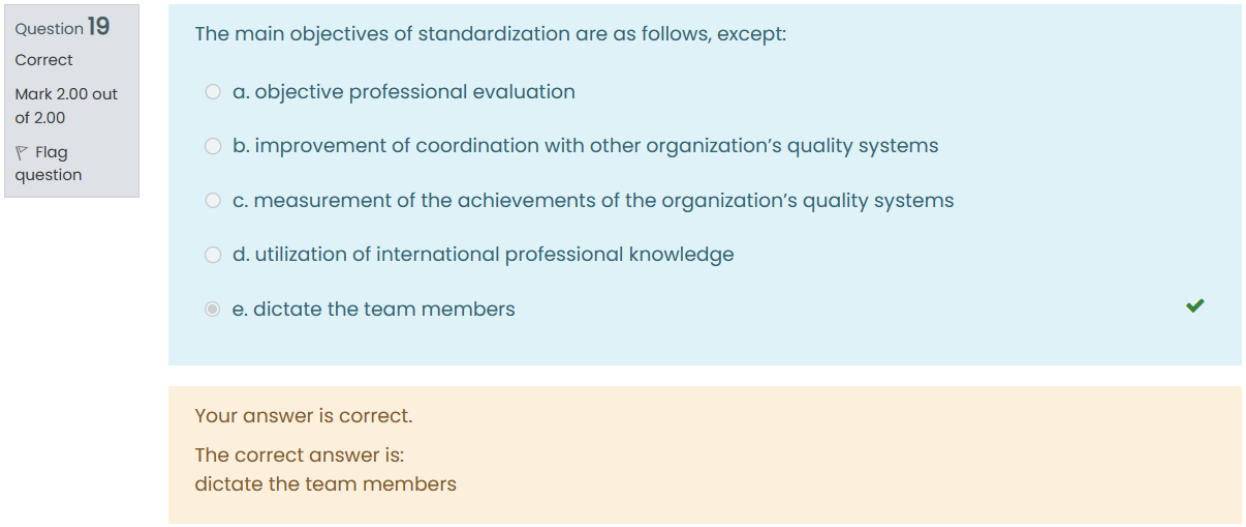
- Quality of software development and maintenance development teams productivity.
- Help desk and maintenance teams productivity.
- Software faults density.
- Schedule deviation.

18. Soal Nomor 18



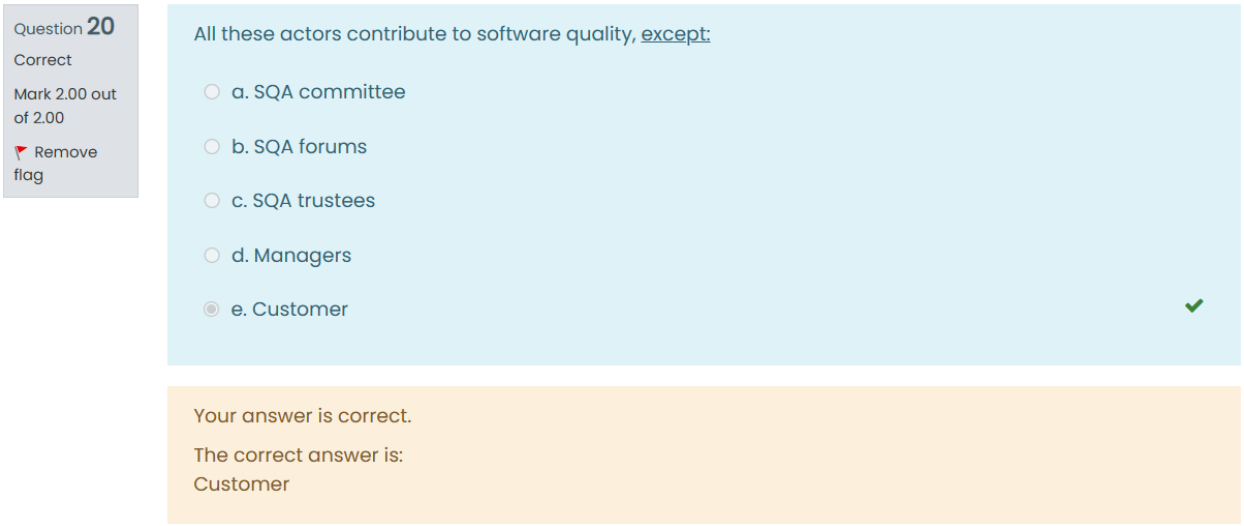
- Expert opinions, reviews, dan testing karena termasuk ke dalam Project Life Cycle SQA Components for fast Development

19. Soal Nomor 19



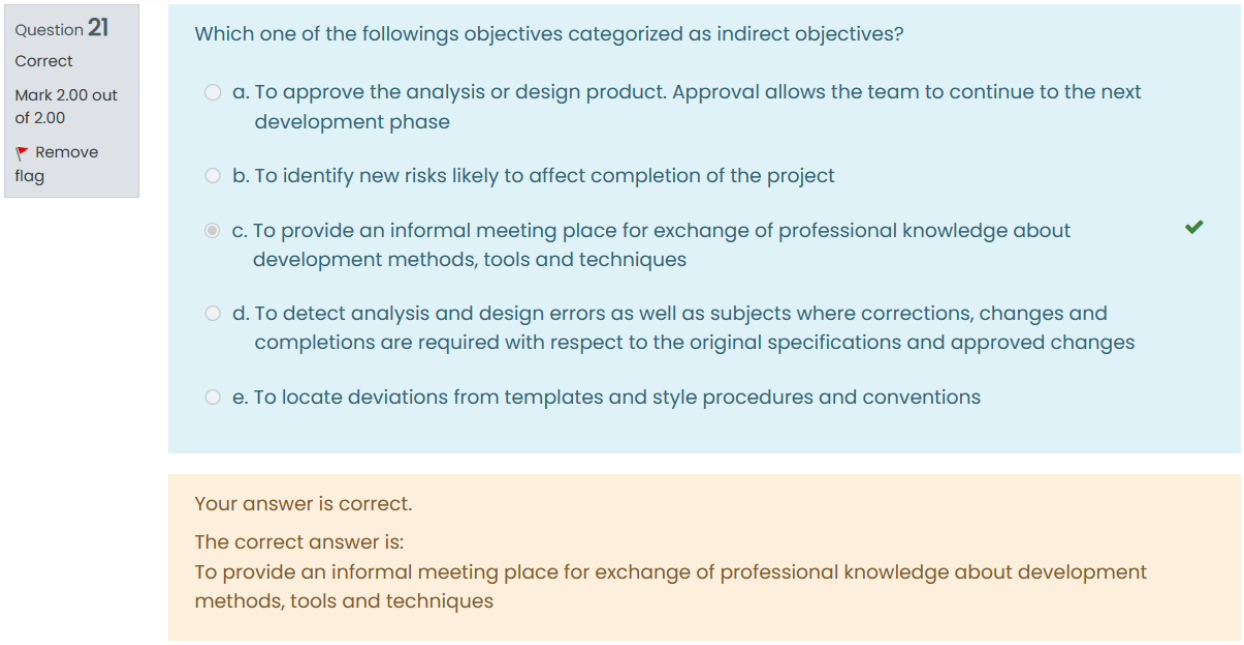
- The main objectives of standardization adalah:
  - Utilization of international professional knowledge.
  - Improvement of coordination with other organization's quality systems.
  - Objective professional evaluation and measurement of the achievements of the organization's quality systems.

20. Soal Nomor 20



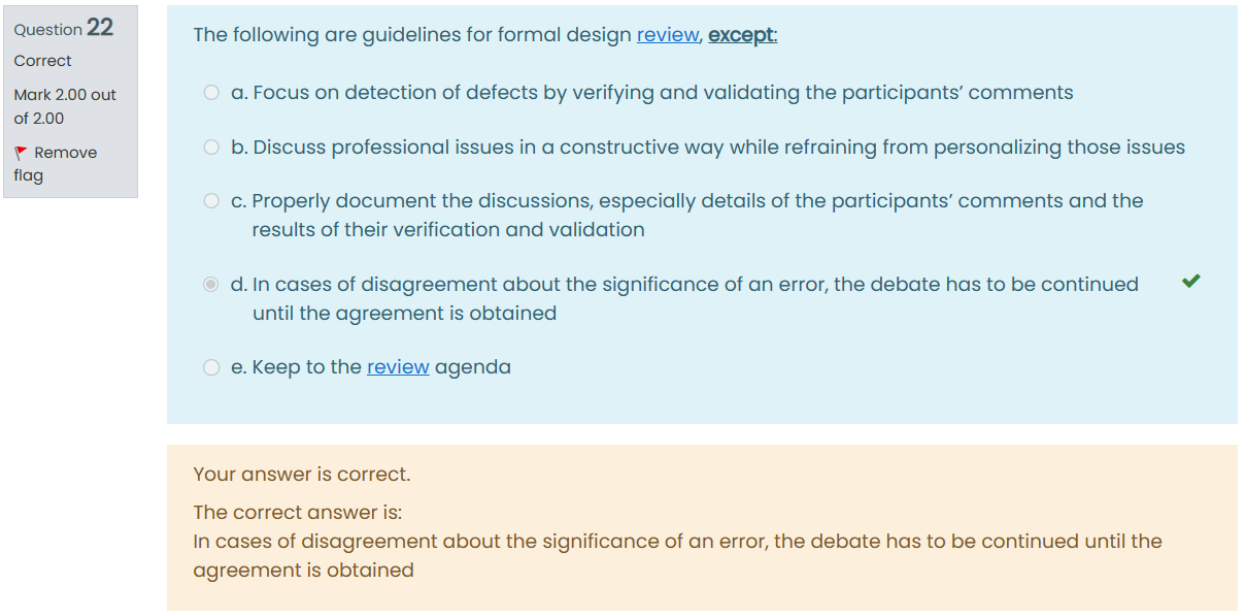
- ❖ Customer tidak berkontribusi dalam software quality

21. Soal Nomor 21



- ❖ Ada 2 objektif, yaitu:
  - To provide an informal meeting place for exchange of professional knowledge about development methods, tools andtechniques.
  - To record analysis and design errors that will serve as a basis for future correctiveactions.The corrective actions are expected to improve development methods by increasing effectiveness and quality, among other product features

22. Soal Nomor 22



- Pedoman dari formal design review adalah Review the product, not the producer; Set an agenda and maintain it; Limit debate and disproof; Declare problem areas, but don't attempt to solve every problem noted; Take written notes; Limit the number of participants and insist upon advance preparation; Develop a checklist for each product that is likely to be reviewed; Allocate resources and schedule time for FTRs; Conduct meaningful training for all reviewers; Review your early reviews. Berdasarkan guidelines di atas maka yang tidak termasuk adalah in case of disagreement about the significance of an error, the debate has to be continued until the agreement is obtained

23. Soal Nomor 23

Question 23
Correct
Mark 2.00 out of 2.00
Flag question

Participant of code review who responsible to describe section of reviewed work product is:

- a. Inspector
- b. Author
- c. Moderator
- d. Reader ✔
- e. Reviewer

Your answer is correct.
The correct answer is:
Reader

- ❖ Reader: Describing the sections of the work product

24. Soal Nomor 24

Question 24
Correct
Mark 2.00 out of 2.00
Remove flag

The following error type cannot be detected by testing process but detected by code inspection:

- a. Unrequired functionality present ✔
- b. Boundary value errors
- c. Performance problems
- d. Usability problems
- e. Failure to meet requirement

Your answer is correct.
The correct answer is:
Unrequired functionality present

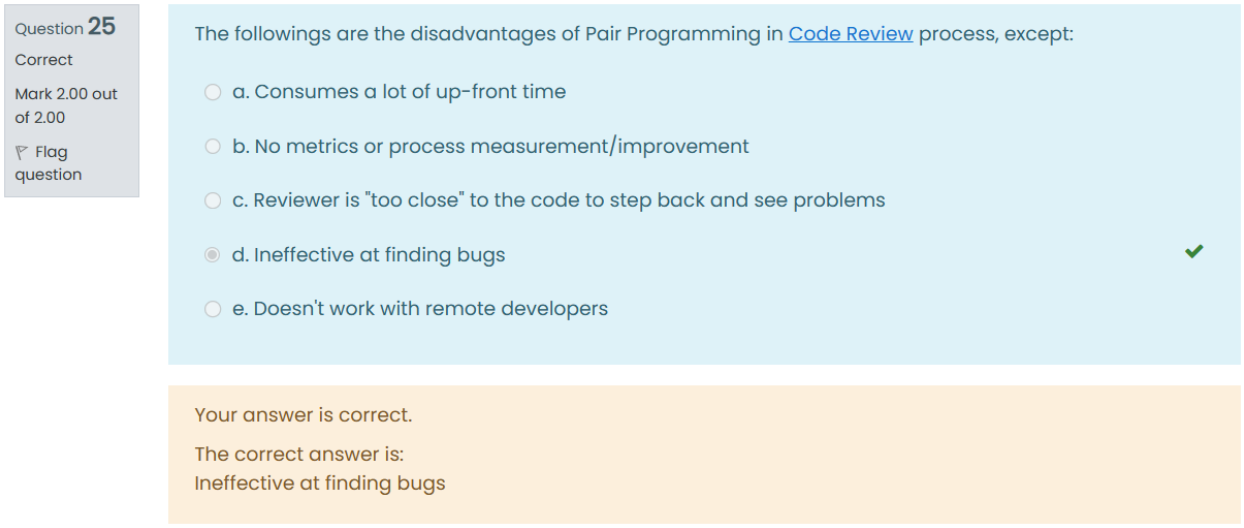
- ❖ Perbedaan Code Inspection dengan Testing:

Code Inspection vs Testing

Table 1. Finding Different Kinds Of Bugs By Code Inspection Or Testing.

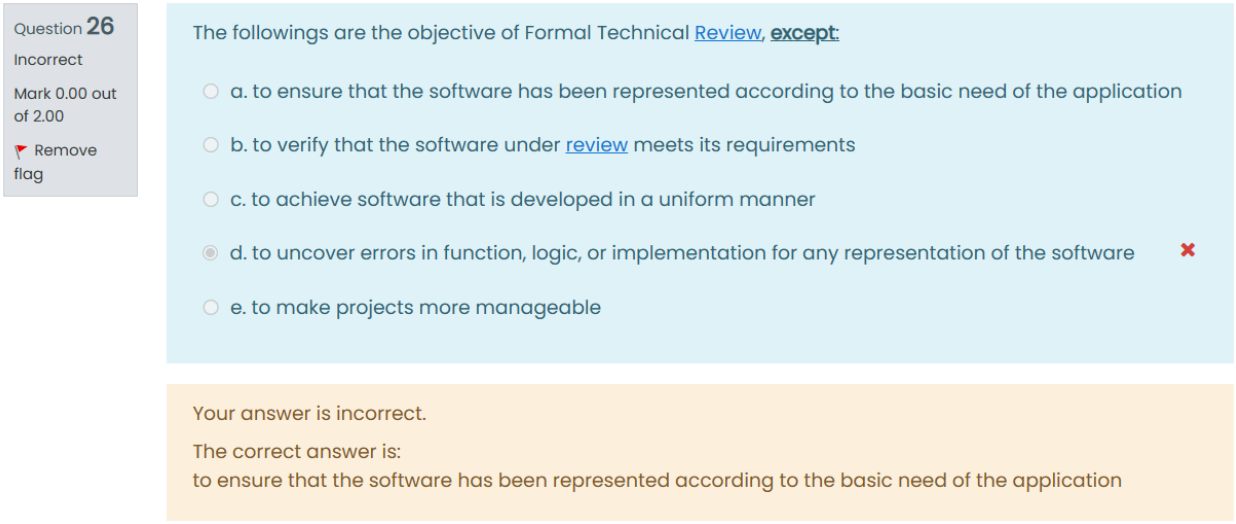
Error Type	Inspection	Testing
Module interface errors	x	
Excessive code complexity	x	
Unrequired functionality present	x	
Usability problems		x
Performance problems	x	x
Badly structured code	x	
Failure to meet requirements	x	x
Boundary value errors	x	x

25. Soal Nomor 25



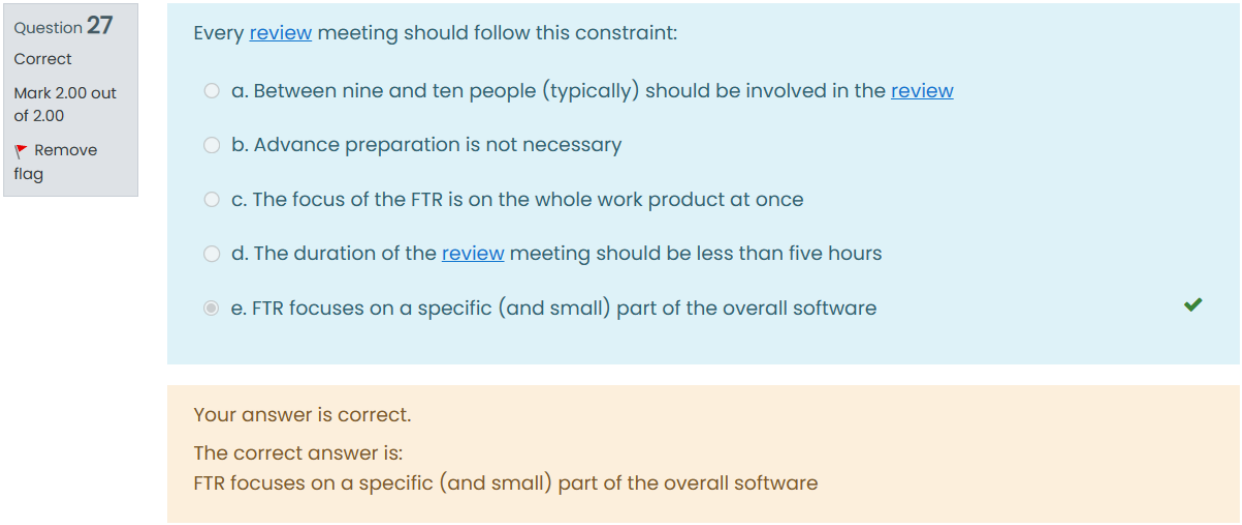
- ❖ Cons:
  - Some developers don't like it
  - Reviewer is "too close" to the code to step back and see problems
  - Consumes a lot of up-front time
  - Doesn't work with remote developers
  - No metrics or process measurement/improvement

26. Soal Nomor 26



- The objectives of the FTR are:
  - to uncover errors in function, logic, or implementation for any representation of the software;
  - to verify that the software under review meets its requirements;
  - to ensure that the software has been represented according to predefined standards;
  - to achieve software that is developed in a uniform manner;
  - to make projects more manageable.

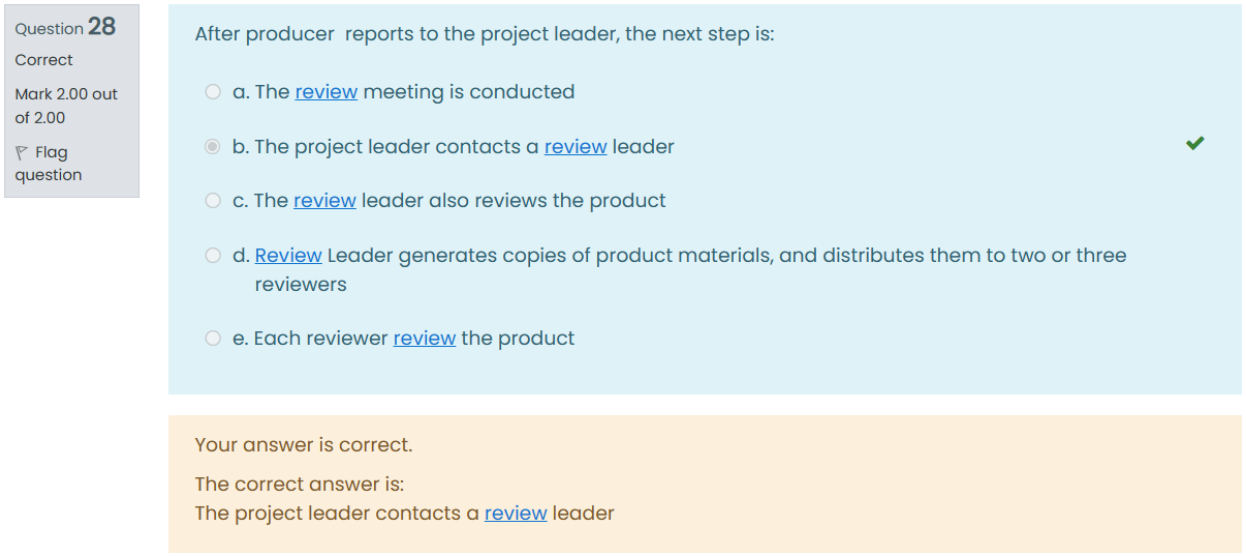
27. Soal Nomor 27



- Every review meeting should follow these constraints:

- Between three and five people (typically) should be involved in the review.
- Advance preparation should occur but should require no more than two hours of work for each person.
- The duration of the review meeting should be less than two hours.

28. Soal Nomor 28



❖ Things to do before the review meeting:

- The producer reports to the project leader
- The project leader contacts a review leader
- Review Leader generates copies of product materials, and distributes them to two or three reviewers
- reviewer review the product
- The review leader also reviews the product

29. Soal Nomor 29

Question 29
Correct
Mark 2.00 out of 2.00
Flag question

Choose all the possible decision of the FTR:

- [ ] a. change personnel
- [x] b. accept the product provisionally (no additional review will be required) ✔
- [x] c. reject the product due to severe errors (once corrected, another review must be performed) ✔
- [ ] d. close the project
- [x] e. accept the product without further modification ✔

Your answer is correct.

The correct answers are:
accept the product without further modification,
reject the product due to severe errors (once corrected, another review must be performed),
accept the product provisionally (no additional review will be required)

- ❖ At the end of the review, all attendees of the FTR must decide whether to:
  - accept the product without further modification OR
  - reject the product due to severe errors (once corrected, another review must be performed), OR
  - accept the product provisionally (minor errors have been encountered and must be corrected, but no additional review will be required).

30. Soal Nomor 30

Question 30
Correct
Mark 2.00 out of 2.00
Flag question

Followings need to do before the review meeting, **except**:

- ( ) a. The project leader contacts a review leader
- (•) b. Sign-off the decision of the review ✔
- ( ) c. Each reviewer reviews the product
- ( ) d. The review leader also reviews the product
- ( ) e. Review Leader generates copies of product materials, and distributes them to two or three reviewers.

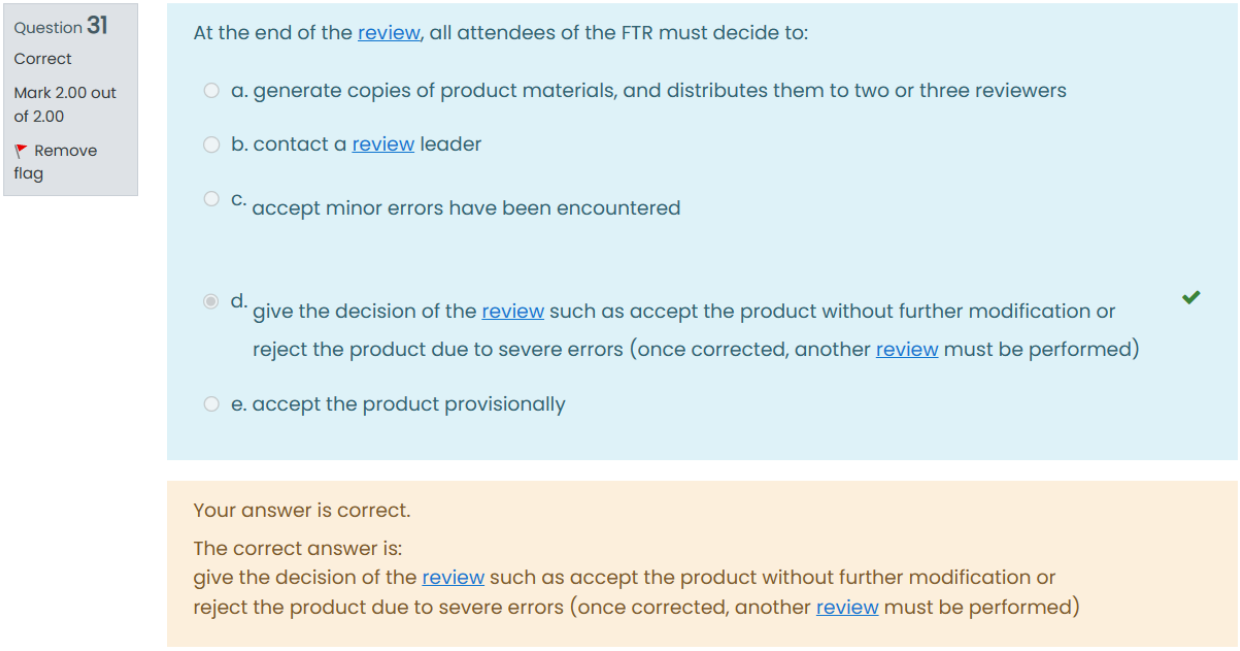
Your answer is correct.

The correct answer is:
Sign-off the decision of the review

- ❖ Things to do before the review meeting:

- The producer reports to the project leader
  - The producer :the individual who has developed the work product)
  - informs the project leader that the work product is complete and that a review is required.
- The project leader contacts a review leader
  - Areview leader: one who evaluates the product for readiness
- Review Leader generates copies of product materials, and distributes them to two or three reviewers
  - for advance preparation.
- reviewer review the product
  - He/she is expected to spend between one and two hours reviewing the product, making notes, and otherwise becoming familiar with the work.
- The review leader also reviews the product
  - establishes an agenda for the review meeting, which is typically scheduled for the next day.

31. Soal Nomor 31



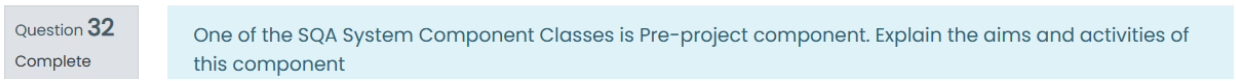
❖ At the end of the review, all attendees of the FTR must decide whether to:

- accept the product without further modification OR

- reject the product due to severe errors (once corrected, another review must be performed), OR
- accept the product provisionally (minor errors have been encountered and must be corrected, but no additional review will be required).

The decision made, all FTR attendees complete a sign-off, indicating their participation in the review and their concurrence with the review team's findings.

32. Soal Nomor 32



Jawaban:

❖ Pre-project component merupakan komponen dalam software quality assurance yang harus dipersiapkan sebelum project dimulai atau dilaksanakan. Pre-project komponen ini terdiri dari:

- Contract Review
  - Klarifikasi kebutuhan pelanggan
  - Tinjau jadwal proyek dan estimasi kebutuhan sumber daya
  - Evaluasi kapasitas staf profesional untuk melaksanakan proyek yang diusulkan
  - Evaluasi kemampuan customer untuk memenuhi kewajibannya
- Development and Quality Plans
  - Jadwal
  - Tenaga kerja dan sumber daya perangkat keras yang dibutuhkan
  - Evaluasi risiko
  - Masalah organisasi: anggota tim, subkontraktor, dan kemitraan
  - Metodologi proyek, alat pengembangan, dll.
  - Rencana penggunaan ulang perangkat lunak

33. Soal Nomor 33

Question 33
Complete
Marked out of 10.00
Flag question

The followings are the Non-functional requirements of a software, named "*Super-lab*". Define the *Software Quality Factors* for each of these NFR items.

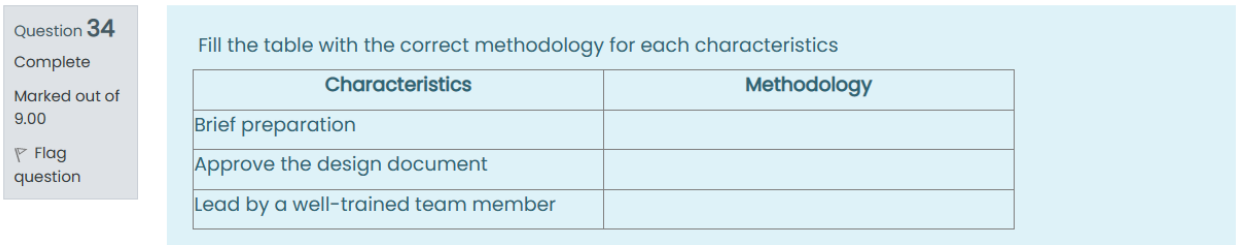
No	NFR	Software Quality Factors
1	The probability of failure during working hours (9am-4pm) is expected to be less than 0.5%	
2	Training for laboratory technician is less than 3 days. The training is enable technician to achieve C level of ability to operate the software. With this ability, a technician can handle more than 20 patients per hours.	
3	The "Super-lab" will record the detailed user log. The application will report an unwanted intruder that is tried to steal the medical record information from the database. The report consists of: network identification, day and time of the trial, type of action.	
4	The "Super-lab" is currently developed for hospital laboratory. In the future development, it can be extended to be adapted for non-hospital laboratory.	
5	The "Super-lab" is develop to be operated on the Linux operating system, but it also should be able to be operated in Windows NT.	

- The followings are the Non-functional requirements of a software, named "Super-lab". Define the Software Quality Factors for each of these NFR items.

No	NFR	Software Quality Factors
1	The probability of failure during working hour (9am-4pm) is expected to be less than 0.5%	Reliability
2	Training for laboratory technician is less than 3 days. The training is enable technician to achieve C level of ability to operate the software. With this ability, a technician can handle more than 20 patients per hours.	Usability
3	The "Super-lab" will record the detailed user log. The application will report an unwanted intruder that is tried to steal the medical record information from the database. The report consists of: network identification, day and time of the trial, type of action.	Integrity

4	The "Super-lab" is currently developed for hospital laboratory. In the future development, it can be extended to be adapted for non-hospital laboratory.	Reusability
5	The "Super-lab" is develop to be operated on the Linux operating system, but it also should be able to be operated in Windows NT.	Portability

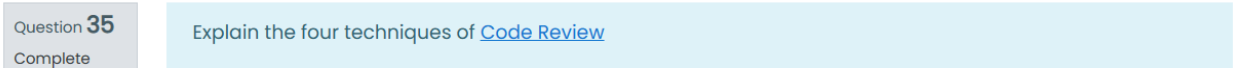
34. Soal Nomor 34



Jawaban:

Characteristics	Methodology
Brief preparation	Walkthrough
Approve the design document	Formal Design Review
Lead by a well-trained team member	Inspection

35. Soal Nomor 35



❖ Four techniques of Code Review:

- **Over-the-shoulder**
  - Easy to implement
  - Fast to complete
  - Might work remotely with desktop-sharing and conference calls
  - Reviewer led through code at author's pace
  - Usually no verification that defects are really fixed
  - Easy to accidentally skip over a changed file
  - Impossible to enforce the process

- No metrics or process measurement/improvement

- **Email pass-around**:
  - Fairly easy to implement
  - Works with remote developers
  - SCM system can initiate reviews automatically
  - Easy to involve other people
  - Doesn't interrupt reviewers
  - Usually no verification that defects are really fixed
  - How do you know when the review is "complete?"
  - Impossible to know if reviewers are just deleting those emails
  - No metrics or process measurement/improvement

- **Pair Programmming**:
  - Shown to be effective at finding bugs and promoting knowledge-transfer
  - Reviewer is "up close" to the code so can provide detailed review
  - Some developers like it
  - Some developers don't like it
  - Reviewer is "too close" to the code to step back and see problems
  - Consumes a lot of up-front time
  - Doesn't work with remote developers
  - No metrics or process measurement/improvement

- **Tool-assisted**: Authors and reviewers use specialized tools designed for peer code review.